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POPULATION EXPOSURE DOSE RECONSTRUCTION FOR THE URALS REGION

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Population exposure in the Urals occurred as a result of failures in the technological processes at the Mayak plutonium facility in the 1950's. The major sources of radioactive contamination were the discharges of 2.7 mln. Ci of liquid wastes into the Techa River (1949-1956); an explosion in the radioactive waste storage facility in 1957 (the so-called Kyshtym Accident) that formed the East Urals Radioactive Trace (EURT) due to dispersion of 2 mln Ci in the atmosphere; and gaseous aerosol releases within the first decades of the facility's operation (1949-1966). The reconstruction of radiation exposure to people living in the vicinity of the Mayak facility is potentially very complex. A set of conceptual models are described in this report. These models define the relationships, pathways, and parameters that will form the basis of the dose reconstruction efforts. Work performed under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under contract W-7405-ENG-48.